

Remarks

Reconsideration of the present application is requested in light of the amendments and the following remarks.

I. Objections to Claims 4, 12, 18, 26, 32 and 40

Claims 4, 12, 18, 26, 32 and 40 were objected under 37 C.F.R. 1.75(c) for depending from a multiple dependent claim. These claims have been amended to address this objection.

II. Rejection of Claims 1-3, 7-9, 13-17, 21-23, 27-31, 35-37 and 41-42 over Grepaly

Claims 1-3, 7-9, 13-17, 21-23, 27-31, 35-37 and 41-42 were rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 6,938,932 to Grepaly et al (Grepaly). Applicants traverse this rejection and requests that it be withdrawn.

Independent claim 1, as amended, recites an end fitting for a flexible pipe, the end fitting comprising a housing having an inner surface defining a bore for receiving an end portion of the pipe. The bore has at least two axially spaced raised portions each having a curved cross section for engaging the corresponding outer surface of the pipe to provide a seal.

Independent claim 15, as amended, recites a pipe assembly comprising an end fitting comprising a housing having an inner surface defining a bore for receiving an end portion of the pipe. The bore has at least two axially spaced raised portions each having a curved cross section. A flexible pipe having an end portion extends in the bore, with the raised portions engaging the corresponding outer surface of the pipe to provide a seal.

Independent claim 29, as amended, recites a method of assembling a pipe assembly comprising forming a bore in an end fitting, forming at least two axially spaced raised portions each having a curved cross section on the inner surface of the housing defining the bore; and inserting an end portion of a flexible pipe in the bore with the raised portions engaging the corresponding outer surface of the pipe to provide a seal.

One advantage of utilizing at least two axially spaced raised portions is that pressure testing of the assembled end fitting and flexible pipe can be carried out in a much more convenient manner than previously possible. Pressure testing can be performed by applying fluid pressure through a test bore in the housing, for example test bore 10b shown in FIGS. 1 and

2 of the present application. The test bore 10b extends from the outer surface of the housing and opens at the housing inner surface between raised portions 14a, 14b. Any failure of the seal on either side of the bore can be detected by determining a drop in pressure or failure to establish a predicted pressure. In this way, a convenient check can be made that the end of the pipe is sealed and secured in the end of the end fitting. This can be carried out prior to a remainder of the end fitting (not shown in FIG. 2) being irreversibly secured. In prior systems, such a test was not able to be carried out until further portions of the end fitting were secured together, including the provision of an outer seal. When such an end fitting is tested, failure means that the whole end fitting and flexible pipe must be discarded, which is a lengthy and costly operation.

In contrast, Grepaly discloses an end fitting comprising a stepped bore having a series of flat surfaces of increasing diameter. Grepaly does not teach or suggest an end fitting having at least two axially spaced raised portions each having a curved cross section, as recited in the claims. Accordingly, claims 1, 15 and 29 are not anticipated by Grepaly, and therefore are allowable.

Dependent claims 2-3, 7-9, 13-14, 16-17, 21-23, 27-28, 30-31, 35-37 and 41-42 depend directly or indirectly from claims 1, 15, or 29 and are patentable for the reasons given above in support of their base claims and because each dependent claim sets forth an independently patentable combination of features.

III. Rejection of Claims 1, 5-6, 15, 19-20, 29 and 33-34 over Schnabel

Claims 1, 5-6, 15, 19-20, 29 and 33-34 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 2,920,910 to Schnabel (Schnabel). Applicants traverse this rejection and requests that it be withdrawn.

Schnabel discloses an end fitting assembly comprising a ferrule 16a (FIG. 5) formed with continuous threads 22 on its inner surface. Schnabel does not teach or suggest an end fitting having at least two axially spaced raised portions, as recited in the claims 1, 15, and 29. Accordingly, claims 1, 15 and 29 are not anticipated by Schnabel, and therefore are allowable.

Dependent claims 5-6, 19-20, and 33-34 depend directly or indirectly from claims 1, 15, or 29 and are patentable for the reasons given above in support of their base claims and because each dependent claim sets forth an independently patentable combination of features.

IV. Rejection of Claims 1, 9-11, 15, 23-25, 29 and 37-39 over Scholtes

Claims 1, 9-11, 15, 23-25, 29 and 37-39 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 2,228,018 to Scholtes (Scholtes). Applicants traverse this rejection and requests that it be withdrawn.

Scholtes discloses an end fitting formed with sharp dog teeth on its inner surface for engagement with the outer surface of a pipe. The teeth are utilized to prevent reverse rotation of a layer of pipe subsequent to it being located in the end housing. The sharp teeth can cause stress concentration points on a flexible pipe which can prematurely lead to fractures and ultimately failure of the pipe.

Unlike claims 1, 15, and 29, Scholtes does not teach or suggest an end fitting with at least two axially spaced raised portions, each having a curved cross section. Advantageously, the curved cross section of the instantly claimed apparatus and method does not promote premature failure of the flexible pipe, as could the teeth of Scholtes. Accordingly, claims 1, 15 and 29 are not anticipated by Scholtes, and therefore are allowable.

Dependent claims 9-11, 23-25, and 37-39 depend directly or indirectly from claims 1, 15, or 29 and are patentable for the reasons given above in support of their base claims and because each dependent claim sets forth an independently patentable combination of features.

V. Conclusion

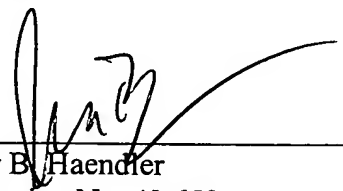
The present application is in condition for allowance and such action is respectfully requested. If any further issues remain concerning this application, the Examiner is invited to call the undersigned to discuss such matters.

Respectfully submitted,

KLARQUIST SPARKMAN, LLP

One World Trade Center, Suite 1600
121 S.W. Salmon Street
Portland, Oregon 97204
Telephone: (503) 595-5300
Facsimile: (503) 595-5301

By


Jeffrey B. Haendler
Registration No. 43,652